

PATENT  
Application No. 10/776,882  
Docket No. 59004.US

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently amended) A method of detecting a latent pattern of target molecular structures present on a surface of a solid support, the method comprising:

providing a solution of colloidal particles, substantially each colloidal particle carrying a net electric charge ~~and being capable of electrostatic interaction with the solid support and the target molecular structures so as to be capable of precipitating on the solid support at locations corresponding to locations of the target molecular structures;~~

providing a solution of target molecular moieties obtained from a biological sample, consisting essentially of target molecular moieties which have not been chemically modified from their native state in the biological sample;

providing a solid support comprising a plurality of distinct test sites carrying probe moieties, wherein the probe moieties at each test site can recognize and bind particular target moieties;

contacting said solid support with the solution of target moieties to bind the target moieties to the test sites with the bound target moieties forming a latent pattern of target molecular structures on the surface of the solid support;

exposing the surface of the ~~substrate~~ solid support having the latent pattern of molecular structures to the solution of colloidal particles under conditions of precipitation to yield a layer of precipitated colloidal particles on the surface of the ~~substrate~~ solid support, the layer of precipitated colloidal particles having a density which varies corresponding to the presence the target molecular structures; and

measuring the varying density of the precipitated colloidal particles on the surface of the ~~substrate~~ solid support to determine the locations and quantity of the target molecular structures on the surface of the solid support.

2. (Currently amended) The method of claim 1 wherein the latent pattern of target molecular structures is formed by hybridized nucleic acids.

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3. (Currently amended) The method of claim 1 wherein the latent pattern of target molecular structures is resulted from specific binding of target and probe proteins.
4. (Previously presented) The method of claim 1 wherein the colloidal particles comprise particles having a size of less than about 10  $\mu\text{m}$ .
5. (Previously presented) The method of claim 1 wherein the colloidal particles comprise gold nanoparticles.
6. (Previously presented) The method of claim 1 wherein the colloidal particles have a net negative electric charge.
7. (Previously presented) The method of claim 1 wherein the colloidal particles are covered by a positively charged polymer substance.
8. (Previously presented) The method of claim 1 further comprising the step of treating the surface of the solid support with a solution of a positively charged polymer substance.
9. (Previously presented) The method of claim 1 further comprising the step of treating the surface of the solid support with a solution of a negatively charged polymer substance.
10. (Currently amended) The method of claim 1 wherein the latent pattern of target molecular structures is provided on the surface of the solid support by enzymatic digestion of molecular structures on the surface of the solid support.
- 11 – 17 (Cancelled)
18. (Previously presented) The method of claim 1, wherein the solid support comprises an opaque substrate.
19. (Previously presented) The method of claim 1, wherein the solid support comprises a transparent substrate.

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20. (Previously presented) The method of claim 1, wherein the solid support comprises a transparent substrate having a back side blackened by a light absorbing paint.

21. (Previously presented) The method of claim 1, wherein the solid support comprises a transparent substrate having a light absorbing screen located a predetermined distance behind the substrate.